In re appln. of Shi-Sheng Wang
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AMENDMENTS IN THE SPECIFICATION

Please replace the paragraph on beginning on page 1, line 17, and ending on page 2, line 7, with the following:

There are currently two approaches to increasing the color contrast of a video image on the display screen of a CRT. One approach involves the addition of organic dyes in a surface coating disposed in the form of a thin layer in the outer surface of the CRT's display screen. The other approach to increasing video image color contrast is through the use of inorganic pigments in the display screen's outer surface coating. Unfortunately, inorganic pigments are characterized as having only limited solubility and are difficult to disburse in organic solvents. Thus, the use of organic dyes in the display screen's surface coating is the more commonly used approach for increasing color video image contrast.

Please replace the paragraphs beginning on page 8, line 15, and ending on page 10, line 2, with the following:

The present invention contemplates the addition of two silane coupling agents to an antireflective coating or a combination antireflective/antistatic coating applied to the outer surface of the glass display screen of a CRT. One silane coupling agent contemplated for use in the present invention [is MS-50 having] has the following structure:

f-organic structure $-Si(OCH_3)_3$,

where "f" is a special function group which reacts with an acid dye within the silica liquid forming the antireflective or antistatic/antireflective coating. The "$-Si(OCH_3)_3$" reacts with $-Si(OH)_4$ from tetraethoxy silane (TES) within the silica-based liquid coating. TES has the chemical structure

$Si(OC_2H_5)_4$. The [MS-50] silane coupling agent serves as a strong bonding agent between the organic colored dye in the form of an acid dye and SiO_2 in the silica-based coating liquid which prevents leaching or washing out of the colored dye from the antireflective coating or antistatic/antireflective combination coating disposed on the outer surface of the CRT's display screen.

The present invention further contemplates a second silane coupling agent which functions as a hydrophobic agent to prevent moisture from permeating into the antireflective or antistatic/antireflective coating on the surface of the CRT's glass faceplate. In a preferred embodiment, this second silane coupling agent [is MS-80 having] has the following composition.

hydrophobic group - organic structure $-Si(OCH_3)_3$,

where the "hydrophobic group" is a special function group which prevents permeation of moisture into the antireflective or antistatic/antireflective layer, "$-Si(OCH_3)_3$," reacts with $-Si(OH)_4$ in TES within the silica-based antireflective or antistatic/antireflective on the coating of the surface of the CRT's display screen. The [MS-80] second silane coupling agent prevents moisture from permeating into the antireflective or antistatic/antireflective coating when the display screen is wiped with a wet or moist cloth or in high moisture atmospheric conditions. In a preferred embodiment, the ratio of the first silane coupling agent [MS-50] to the dye is 6%, while the preferred ratio of the second silane coupling agent [MS-80] to the dye is 10%. The present invention [is not limited to the use of MS-50 and MS-80 silane coupling agents as other] can employ various silane coupling agents well known to those skilled in the relevant arts [could also be used].

Please replace the paragraphs beginning on page 10, line 20, and ending on page13, line 9, with the following:

A black acid dye was added to the silica liquid to provide the results described in the following paragraphs. The silica liquid was comprised of TES and [the] two [aforementioned] silane coupling agents[, MS-50 and MS-80]. Table 1 [showed] shows the weight ratio of [MS-80] the first silane coupling agent to the black acid dye as well as the ratio of [MS-80] the second silane coupling agent to the black acid dye.

Table 1:

	Second Silane Coupling Agent/Dye		First Silane Coupling Agent/Dye
A1	5%	C1	3%
A2	10%	C2	6%
A3	20%	C3	12%
A4	40%	C4	24%
A5	80%	C5	48%

The weight ratio of [MS-50] the first silane coupling agent to the black acid dye as well as the weight ratio of the [MS-80] the second silane coupling agent to the black acid dye in the silica solution for different mixtures are shown in Table 2.

Table 2:

	First Silane Coupling Agent/Dye	Second Silane Coupling Agent/Dye
Mix-1	10%	6%
Mix-2	6%	10%
Mix-3	10%	10%

The resistance of the antireflective silica solution containing the disclosed silane coupling agents for the compositions shown in Table 1 are shown graphically in FIG. 4. The resistance of the silane-based solution as a function of the content of [MS-50 and MS-80] <u>the first silane coupling agent and the second silane coupling agent</u> is also shown in Table 3. From FIG. 4 and Table 3, it can be seen that the silica-based solution's resistance is independent of the content of either the [MS-50 or MS-80] <u>first or second silane coupling agent</u>. The electrical resistance was measured by a high-resistance meter, with the MCP-HT260 system available from Mitsubishi Petro Chemical. The hardness of the coating containing the two silane coupling agents was tested using the pencil hardness test from 1H to 9H, with a loading of 1 Kgf. It was found that the hardness of the coating decreased as the content of the silane coupling agents increased, with the silane coupling agents having a softer structure. Therefore, the amount of silane coupling agent which can be added is not without limit, even if the moisture resistance characteristics improve with increased silane coupling agent content. By using two silane coupling agents, each performing a different function, the desirable mechanical properties of the coating may be retained by using less amounts of silane coupling agent.

Table 3:

	Resistance (k)
Mix-1	19
Mix-2	18
Mix-3	20

Table 4 shows <u>that</u> the light transmittance of the coating is a function of the content of <u>the</u> two silane coupling agents. Table 4 shows that the light transmittance is lower because more dye was

retained by the coating after wiping as a result of the addition of the silane coupling agent. However, the desirable mechanical properties of the coating may be lost by adding too much silane coupling agent. [The coating's moisture resistance and mechanical properties were found to be optimum with the use of MS-50 and MS-80 silane coupling agents.]

Table 4:

No.	T(ratio)	No.	T(ratio)
A1	50.4%	C1	49.3%
A2	50%	C2	47.8%
A3	48.2%	C3	47.2%
A4	46.4%	C4	46.8%
A5	46%	C5	46.2%

No.	T(ratio)
NS (non silane)	51.2%
Mix-1	48.6%
Mix-2	46.1%
Mix-3	45.8%
Mix-4	46.1%
Mix-5	46%

Referring to FIG. 5, there is shown a graphic illustration of the reflectivity of a surface coating having a range of weight ratios of [MS-50 and MS-80] <u>the first silane coupling agent and the second silane coupling agent</u> to the organic dye within the coating in accordance with the present invention. With an increase in the content of the silane coupling agents, the reflectivity curve of the

coating is lowered. As the content of the silane coupling agents increases, more dye is retained in the coating after wiping. In general, it is desirable to reduce the light intensity as low as possible in order to increase the video image contrast. The black dye in the coating absorbs the light and decreases the reflectance. Thus, a lower reflectivity curve is obtained with an increase in the content of the silane coupling agents in the coating.